Uterine Arteriovenous Malformation

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ABSTRACT

We aimed to report a case of uterine arteriovenous malformation (UAVM) which was successfully treated by uterine artery embolization.

A multiparous 23-year-old woman referred to our clinic for 7 weeks scar pregnancy. On ultrasound, incisional 32×37 mm gestational sac surrounded with non-pulsatile high flow vessels was demonstrated. Uterine artery embolization was performed with Gelfoam by interventional radiology. The post-embolization arteriogram showed complete embolization of the UAVM with slow flow of contrast in both uterine arteries.

In clinical suspicion, UAVM can be diagnosed with Doppler ultrasonography and can be treated successfully with either uterine artery embolization or uterine surgery. UAVM is commonly diagnosed in women of childbearing age, angiographic embolization should be the firstly preferred treatment.

Keywords: Embolization, Scar pregnancy, Arteriovenous malformation

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Introduction

Uterine arteriovenous malformation (UAVM) is a rare condition which can be life threatening when presenting with severe bleeding. There are fewer than 100 cases reported in the literature. UAVMs can be congenital or acquired. Congenital type UAVM is very rare, and it results from developmental abnormalities of uterine vessels. Acquired type is more common, and may develop after pelvic surgery, endometrial carcinomas, miscarriage, uterine infections, leiomyomas, endometriosis, intrauterine devices and gestational trophoblastic diseases (1,2). Doppler ultrasonography and computerized tomography (CT) or magnetic resonance (MR) angiography are generally used for diagnosis. Treatment options are uterine artery embolization and uterine surgery (3-7). In this case report, we presented a 7-week pregnant woman with acquired UAVM secondary to previous cesarean section which was successfully treated with uterine artery embolization. Informed consent was taken from the patient.

Case Report

A multiparous 23-year-old woman with a history of previous two cesarean sections, referred to our clinic for 7 weeks scar pregnancy. The patient was hospitalized. Except cesarean section, she had no uterine surgery in her medical history. On Doppler ultrasonography, an incisional 32x37 mm gestational sac and non-pulsatile high flow vessels was demonstrated in endometrial cavity (Figure 1,2). The patient was hemodynamically stable with no uterine bleeding. She was consulted to the radiology department for the evaluation of a suspected UAVM, and scheduled for a MR. MR angiography was performed subsequently showing that the UAVM was supplied by bilateral uterine arteries (UA), mainly from the left UA, with some vessels proceeding from the contralateral UA. Uterine artery embolization was performed with Gelfoam by department of interventional radiology (Figure 3). Methotrexate (Methotrexate®, Koçak Farma, Turkey), 50 mg IM was administered only once, as there was also concomitant scar pregnancy. The patient was hemodynamically stable with no uterine bleeding. She was consulted to the radiology department for the evaluation of a suspected UAVM, and scheduled for a MR. MR angiography was performed subsequently showing that the UAVM was supplied by bilateral uterine arteries (UA), mainly from the left UA, with some vessels proceeding from the contralateral UA. Uterine artery embolization was performed with Gelfoam by department of interventional radiology (Figure 3). Methotrexate (Methotrexate®, Koçak Farma, Turkey), 50 mg IM was administered only once, as there was also concomitant scar pregnancy. The post-embolization arteriogram showed complete embolization of the UAVM with slow flow of contrast in both uterine arteries. Post-embolization ultrasound examination revealed distorted gestational sac. During follow-up, β- hCG results showed gradual decrease. The patient was discharged from hospital at post-embolization 40 day (Figure 4).
UA VM is an uncommon vascular disease, which usually occurs during reproductive ages. These potentially life-threatening lesions should be suspected in women with unexplained vaginal bleeding. The pattern of bleeding is intermittent and pouring. UA VM may be presented with life-threatening vaginal bleeding in 30% of patients. Congenital UA VM is extremely rare, and caused by abnormal development of uterine vessels. Acquired UA VM is more common, and presents secondary to previous surgery on the uterus, endometrial carcinomas, miscarriage, uterine infections, leiomyomas, endometriosis, intrauterine devices and gestational trophoblastic diseases (1,2,4).

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Discussion

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hypo/anechoic tubular like structures of varying sizes or as focal endometrial and myometrial thickenings. Vessels with malformations can be recognized with Doppler ultrasonography, MRI can show an enlarged uterus with multiple serpiginous flow-related signal void areas. CT angiography or MR angiography can easily detect the feeding arteries and draining the AVM. Digital subtraction angiography is still the gold standard in diagnostic imaging. However the technique necessitates invasive approach. Doppler ultrasonography combined with CT angiography or MR angiography may be non-invasive diagnostic alternatives with high success (2,3).

There are several treatment options for UAVMs. In hemodynamically stable patients expectant management, medical therapy, curettage and uterine arteriovenous embolization can be applied. Even hysterectomy may be necessary for patients with severe bleeding (5,8,9). Because UAVM is commonly diagnosed in women at childbearing age, angiographic embolization is the preferred treatment with favorable conditions. Our patient had no vaginal bleeding, she was referred to our hospital because of 7 weeks’ scar pregnancy. We diagnosed and treated UAVM with UA embolization before bleeding.

Differential diagnosis includes retained products of conception, gestational trophoblastic disease, multilocular ovarian cysts and pelvic varicosities. Ovarian cysts have no vascular appearance on Doppler ultrasonography, pelvic varicosities can easily be recognized by the appearance of normal venous vessels and prominent parametrial vessels. β- hCG positivity is the main point for the differential diagnosis in patients with gestational trophoblastic disease and retained products of conception. (1,4,10). In the present case β- hCG was high because of 7 weeks scar pregnancy.

In conclusion, UAVM is a rare but potentially life threatening condition. In suspected cases, UAVM can be diagnosed with Doppler ultrasonography, and can be treated successfully with either uterine artery embolization or uterine surgery. To the best of our knowledge, there are few case reports about ectopic pregnancy accompanied by an UAVM treated with uterine artery embolization (6,7). In women of childbearing age, angiographic embolization should be considered as the first treatment option, and hysterectomy should be reserved for only life threatening conditions.

References